AMENDMENT TO THE SPECIFICATION

The paragraph numbers specified below refer to the patent application published as US 2006/0127389A1, which were subsequently amended pursuant to applicants' April 3, 2009 Amendment.

Please amend paragraph [0011] in the following manner:

[0011] In another aspect, the invention relates to a method for preparation of a fusion protein comprising a thrombolytic protein and an anticoagulant protein, which method comprises linking a thrombolytic protein gene and an anti-coagulant protein gene via a base sequence encoding IEGR (SEQ ID NO: 3) or LGPR (SEQ ID NO: 4) to form a gene encoding said fusion protein, and expressing said gene encoding the fusion protein in *E.coli*, yeast or animal cell lines to produce the fusion protein.

Please amend paragraph [0021] in the following manner:

[0021] As used herein, the term "linker peptide recognized by blood coagulation factor" refers to the tetrapeptide of IEGR (IleGluGlyArg) (SEQ ID NO: 3), peptide containing IEGR sequence, tetrapeptide of ~~LGPL~~ LGPR (LeuGlyProArg) (SEQ ID NO: 4) or peptide containing LGPR sequence.

Please amend paragraph [0024] in the following manner:

[0024] According to this invention, the fusion proteins is preferably a SFH fusion protein (SAK-GSIEGR-HV2) composed of staphylokinase and hirudin linked by GSIEGR (SEQ ID NO: 5), a fusion protein (tPA-PRIEGR-HV2) composed of tissue-type plasminogen activator (t-PA) and hirudin linked by PRIEGR (SEQ ID NO: 6), or a fusion protein (SAK-GSLGPR-HV2) composed of staphylokinase and hirudin linked by GSLGPR (SEQ ID NO: 7).

Please amend paragraph [0027] in the following manner:

[0027] Eco R I and BamH I restriction sites are added to the two ends of SAK gene, respectively. The SAK gene without the stop codon is introduced in the vector pBV220, resulting in

pBVSAK. By PCR method, the BamH I restriction site and the sequence coding FXa recognition sequence GSIEGR (SEQ ID NO: 5) are incorporated upstream of hirudin gene via a primer (5'-CG GGA TCC ATC GAA GGT CGT ATT ACT TAC ACT GAT TGT ACA GAA TCG-3'). (SEQ ID NO: 1). The primer matched with downstream of the hirudin gene contains a Pst I restriction site. The hirudin gene with a FXa recognition sequence GSIEGR (SEQ ID NO: 5) is digested by two enzymes of BamH I and Pst I, and the above vector pBVSAK is also digested by BamH I and Pst I. The digested hirudin fragment is inserted into the digested vector pBVSAK to form plasmid pBVSFH (see **FIG. 1**). Said two gene fragments can also been linked by overlapping PCR method. The plasmid pBVSFH is transformed in *E.coli*, and induced to express at 42^0 C. The desired fusion protein (SFH) is obtained by ion exchange and gel filtration method in a purity of more than 96%. The SFH fusion protein comprises three domains, a SAK sequence[.], FXa recognition sequence GSIEGR (SEQ ID NO: 5) and hirudin. The amino acid sequence of SFH fusion protein is as follows:

1 sssfdkgkyk kgddasyfep tgpylmvnvt gvdgkgnell sphyvefpik
61 pgttltkeki eyyvewalda taykefrvve ldpsakievt yydknkkkee
101 sfpitekg fvvpdlsehi knpgfnlitk viiekkgsie gritytdcte sgqdlclceg
161 snvcgkgnkc ilgsngeenq cvtgegtpkp qshndgdfee ipeeylq (SEQ ID NO: 2)

Please amend paragraph [0028] in the following manner:

[0028] The thrombolytic activity of the purified fusion protein was determined using chromogenic substrate S-2251. To test thrombolytic and anticoagulant activity of the fusion protein *in vivo*, mouse-tail thrombosis ~~MRTT~~ MTT was induced by kappa-carrageenin. The results show that the anticoagulant activity of the SFH fusion protein is significantly higher than that of SAK. In particular, after induction by kappa-carrageenin for 24 hrs, SAK is i.p. injected at a dose of 1.2mg/kg body weight every eight hours, and the inhibition of the tail thrombus

is 36.6%. However, when equimolar SFH is administrated at a dose of 1.8mg/kg body weight, the inhibition of the tail thrombus is 100%. After induction by kappa-carrageenin for 36 hrs, the inhibition of the tail thrombus reaches 18.2% and 90% respectively by SAK and SFH administrated as above. The detailed results are shown in Tables 1-3.

Please amend paragraph [0033] in the following manner:

[0033] EcoR I and BamH I restriction sites are added to the two ends of SAK gene, respectively. The SAK gene without the stop codon is introduced in the vector pBV220, resulting in pBVSAK. The BamH I restriction site and the sequence coding FXIIa recognition sequence GSLGPR (SEQ ID NO: 7) are incorporated upstream of hirudin gene via a primer using PCR method. The primer matched with downstream of the hirudin gene contains a Pst I restriction site. The hirudin gene with a FXIIa recognition sequence GSLGPR is digested by two enzymes of BamH I and Pst I, and the above vector pBVSAK is also digeste by BamH I and Pst I. The digested hirudin fragment is inserted into the digested vector pBVSAK to form plasmid pBVSTH. The sequence is confirmed by enzymatic digestion. Alternatively, said two gened fragments may be linked by overlapping PCR method. The plasmid pBVSTH is transformed into *E.coli*, and induced to express at 42 C. The desired fusion protein (STH) is obtained by ion exchange and gel filtration method in a purity of more than 96%. The STH fusion protein comprises three domains, a SAK sequence, FXIIa recognition sequence GSLGPR (SEQ ID NO: 7) and hirudin.